

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method in a data processing system for processing instructions, the method comprising:
responsive to receiving an instruction in an instruction cache in ~~[[at]]~~ a processor in the data processing system, determining whether an indicator ~~[[is]]~~ associated with the instruction is present;
responsive to determining that an indicator associated with the instruction is present, enabling counting of occurrences of each event at least one selected event that is associated with execution of the instruction; ~~if the indicator is associated with the instruction; and~~
counting ~~each event~~ the occurrences of the at least one selected event during ~~associated with the~~ execution of the instruction if counting is enabled for the instruction; and
responsive to determining that an indicator associated with the instruction is not present, executing the instruction without enabling counting of the occurrences of the at least one selected event.
2. (Canceled)
3. (Currently amended) The method of claim 1, wherein the counting step comprises:
incrementing a counter associated with the indicator for each ~~[[time]]~~ occurrence of the at least one selected event occurs.
4. (Canceled)
5. (Currently amended) The method of claim 1, wherein the indicator is stored in a performance instrumentation shadow cache and wherein the processor checks the performance instrumentation shadow cache to determine whether the indicator ~~[[is]]~~ associated with the instruction is present ~~instructions~~.
6. (Currently amended) The method of claim 1, wherein the instruction is received in a bundle ~~[[by an]]~~ in the instruction cache in the processor and wherein the indicator comprises at least one spare bit in a field in the bundle.
7. (Original) The method of claim 1, wherein the indicator is a separate instruction.

8. (Currently amended) The method of claim 1, wherein an event in the at least one selected event events includes at least one of an entry into a module, an exit from a module, an entry into a subroutine, an exit from a subroutine, an entry into a function, an exit from a function, a start of input/output, and a completion of input/output, the execution of the instruction.
9. (Currently amended) The method of claim 1, wherein ~~[[the]]~~ determining whether an indicator associated with the instruction is present ~~[[step]]~~ comprises:
determining, by ~~[[an]]~~ the instruction cache, whether the indicator is present in a field within the instruction.
10. (Currently amended) The method of claim 1, wherein the enabling step comprises:
sending a signal to a performance monitor unit, wherein the performance monitor unit counts occurrences of the at least one selected ~~[[each]]~~ event that is associated with execution of the instruction using a counter.
11. (Currently amended) A data processing system comprising:
a performance monitor unit, wherein the performance monitor unit counts occurrences of at least one selected event that is associated with execution of events ~~for~~ an instruction when a signal is received;
and
an instruction cache, wherein the instruction cache receives ~~instructions~~ the instruction and sends the signal to the performance monitor unit to count the occurrences of the at least one selected event that is events associated with execution of the instruction when it is determined that an indicator ~~[[is]]~~ associated with the instruction is present responsive to receiving the instruction in the instruction cache.
12. (Original) The data processing system of claim 11, wherein the instruction is located in a bundle received by the instruction cache.
13. (Canceled)
14. (Original) The data processing system of claim 11, wherein the indicator is located in a performance instrumentation shadow memory in association with the instruction.

15. (Currently amended) A method in a data processing system for monitoring access to data, the method comprising:

identifying a memory location associated with an indicator; and

enabling counting of ~~events~~ occurrences of at least one selected event that is associated with accesses to the memory location, wherein enabling counting of occurrences of at least one selected event that is associated with accesses to the memory location comprises:

sending a signal from a data cache to a performance monitor unit to enable the performance monitor unit to count the occurrences of the at least one selected event that is associated with accesses to the memory location; and

incrementing a counter in the performance monitor unit for each occurrence of the at least one selected event.

16. (Canceled)

17. (Currently amended) The method of claim 15, wherein an event in the at least one selected event ~~events~~ includes access to the memory location.

18. (Currently amended) A data processing system for processing instructions, the data processing system comprising:

determining means, responsive to receiving an instruction in an instruction cache in ~~in~~ [[at]] a processor in the data processing system, for determining whether an indicator ~~is~~ [[is]] associated with the instruction is present; [[and]]

responsive to determining that an indicator associated with the instruction is present, enabling means for enabling counting of each occurrences of at least one selected event that is associated with execution of the instruction; ~~if the indicator is associated with the instruction; and~~

counting means for counting ~~each event~~ the occurrences of the at least one selected event during ~~associated with the execution of the instruction if counting is enabled for the instruction; and~~

responsive to determining that an indicator associated with the instruction is not present, means for executing the instruction without enabling counting the occurrences of the at least one selected event.

19. (Canceled)

20. (Currently amended) The data processing system of claim 18, wherein the counting means comprises:

incrementing means for incrementing a counter associated with the indicator for each occurrence of [[time]] the at least one selected event occurs.

21. (Canceled)

22. (Currently amended) A data processing system for monitoring access to data, the data processing system comprising:

identifying means for identifying a memory location associated with an indicator; and

enabling means for enabling counting of occurrences of at least one selected event that is events associated with accesses to the memory location; wherein the enabling means comprises:

sending means for sending a signal from a data cache to a performance monitor unit to enable the performance monitor unit to count the occurrences of the at least one selected event that is associated with accesses to the memory location; and

incrementing means for incrementing a counter in the performance monitor unit for each occurrence of the at least one selected event.

23. (Currently amended) A computer program product in a computer readable medium for processing instructions, the computer program product comprising:

first instructions, responsive to receiving an instruction [[at]] in an instruction cache in a processor in the data processing system, for determining whether an indicator [[is]] associated with the instruction is present;

second instructions, responsive to determining that an indicator associated with the instruction is present, for enabling counting of occurrences of [[each]] at least one selected event that is associated with execution of the instruction; ~~if the indicator is associated with the instruction; and~~

third instructions for counting ~~each event~~ the occurrences of the at least one selected event during ~~associated with the execution of the instruction if counting is enabled for the instruction; and~~

fourth instructions, responsive to determining that an indicator associated with the instruction is not present, for executing the instruction without enabling counting the occurrences of the at least one selected event.

24. (Canceled)

25. (Currently amended) The computer program product of claim 23, wherein the third instruction comprises:

sub-instructions for incrementing a counter associated with the indicator for each occurrence of the at least one selected time the event occurs.

26. (New) A method in a data processing system for processing instructions, the method comprising:

responsive to receiving an instruction in an instruction cache in a processor in the data processing system, determining whether an indicator associated with the instruction is present

responsive to determining that an indicator associated with the instruction is present, enabling counting of occurrences of at least one selected event that is associated with execution of the instruction, wherein the enabling comprises sending an enabling signal to a performance monitor unit, wherein the performance monitor unit is enabled to count the occurrences of the at least one selected event that is associated with execution of the instruction using a counter, and wherein the at least one selected event includes at least one of an entry into a module, an exit from a module, an entry into a subroutine, an exit from a subroutine, an entry into a function, an exit from a function, a start of input/output, and a completion of input/output;

counting the occurrences of the at least one selected event during the execution of the instruction when counting is enabled for the instruction; and

responsive to determining that an indicator associated with the instruction is not present, executing the instruction without enabling counting the occurrences of the at least one selected event